



Death Valley Updates—Flood Recovery 2015

Updates:

- On Sunday, November 8, major tasks included:
 - ⇒ *South of Badwater area*: Stockpiling fill and shoulder work.
 - ⇒ *Scotty's Castle area*: removal of mud and debris from around several buildings; unpacking of historic objects; assessments of the area by archeologists; unpacking of historic objects; etc.
- Flood recovery tasks for Saturday, November 7, remain the same, plus additional road work on Artist Drive.
- **Additional road now open**: Mustard Canyon!
- **Areas closed until further notice include**:
 - ⇒ *Scotty's Castle Road/Bonnie Claire Road*: Approximately 5 miles of road access to Scotty's Castle has been destroyed. A temporary one-lane dirt road has been graded to provide access for work crews.
 - ⇒ *Badwater Road*: South of Badwater, the road is washed out in several places within a 10-mile stretch. Closed until further notice.
 - ⇒ *Artists Drive*: This area is closed due to mudflows and road damage, including missing paved road.
 - ⇒ *Twenty Mule Team Canyon Road*: This dirt road was destroyed by floodwater.
 - ⇒ *West Side Road*: This area is covered by debris.
 - ⇒ *Mesquite Springs Campground*
- The flood recovery team at the park includes 111 people from 23 national parks and support offices, other agencies, and organizations including Death Valley Natural History Association, U.S. Park Police, Federal Highways Administration, Department of the Interior, AmeriCorps, and Student Conservation Association.



Background: On Sunday, October 18, 2015, a torrential storm dropped over 3 inches of rain in 5 hours on the northeast section of Death Valley National Park. That night, rangers evacuated Mesquite Springs Campground and sheltered overnight with 20 visitors in their vehicles at Ubehebe Crater. Floodwaters destroyed the road to Scotty's Castle through Grapevine Canyon. The Grapevine housing area was evacuated due to lack of power and water systems. With road access gone, park staff hiked 3 miles to Scotty's Castle the next day to find the castle structure intact with the grounds and many other buildings buried in a thick layer of mud and rocks. This flood was one of several October flash floods. Cumulative damage has most severely affected the Scotty's Castle and Badwater areas.

Weather and Flooding

- This October, staff has measured 1.3 inches of precipitation at Furnace Creek, making this the wettest October on record.
- Scotty's Castle received over 2.7 inches of rain after the October 18 storm. A half-mile away from Scotty's Castle, 3.5 inches of rain fell on the same night. These areas receive about 4 inches of rain/year.
- The resulting flood through Grapevine Canyon may have flowed at a rate of about 93,000 cubic feet per second—10 times that of a "100-year" flood.

Photo top right: In the future, crews will be removing lots of debris from the wash. NPS Photo by Danie Dawson.

Damage to Scotty's Castle Area

Fortunately, the main building sustained only minor damage due to roof leaks. The HVAC system is not operational due to compromised utilities. Currently, historic furniture, archives, and other museum collections are threatened by mold, rodents, dust, lack of a fire suppression system and access, etc. Nearly every building within the Death Valley Scotty's Historic District, has been impacted. In addition:

- *Visitor Center and Hacienda office buildings:* Several feet of water flowed through these buildings, leaving behind 1-4 feet of mud. A structural wall in the visitor center (historic garage) is bulging due to the force of floodwater. Carpets, drywall, exhibits, utilities, and office equipment will need to be replaced. Bookstore shelving and sales items, such as books and t-shirts, have been lost. Walls will require inspection for structural integrity.
- *Historic Longshed and Bunkhouse:* This building is surrounded by up to 5 feet of mud with up to 3 feet of mud inside.
- *Historic Bridge:* The bridge moved slightly but is structurally sound.
- *Historic Pool:* The pool is filled with water/mud.
- *Grounds:* Several feet of mud, boulders, and debris are packed up against buildings. The watercourse feature is damaged. Some courtyard areas are buried in mud; pipelines are exposed in areas gouged by floodwater. Miles of historic fenceline washed out.
- *Water system:* Flooding destroyed a water treatment facility, reservoir, spring box, and water line.
- *Electricity:* Twenty-four power poles were destroyed.
- *Propane:* The propane line is broken.
- *Picnic area:* The flood destroyed the lawn, sprinkler system, and picnic tables.

More Information

www.nps.gov/deva

www.facebook.com/DeathValleyNP

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Top: A front-end loader fills debris in the area south of Badwater Basin—a 1/2-mile north of Coyote Springs. NPS Photo by Frank Lambert.



Below: The Visitor Center at Scotty's Castle is nearly empty. Check out the high-water line on the left! NPS Photo by Danie Dawson.

Medium- and Long-Term Impacts

- Ranger tours through Scotty's Castle generate about \$550,000 in fees annually and approximately 120,000 people per year visit the site. Scotty's Castle is likely to be closed for the foreseeable future.
- Damage assessments are ongoing but will be in the tens of millions of dollars.
- An El Niño weather pattern predicted for this winter brings the possibility of increased precipitation and additional flooding.
- If winter rains continue, the park can expect a spectacular spring wildflower event, which would draw high visitation during 2016—the Centennial anniversary year of the National Park Service.